

LEPIDOPTERA FROM BRITISH NEW GUINEA, COLLECTED BY MR. A. S. MEEK.

BY THE HON. WALTER ROTHSCHILD, Ph.D.

(Plates II. and III.)

THE stimulus to my eagerness for Mr. A. S. Meek to explore the higher parts of the Owen Stanley Range was given by the wonderful discoveries made by Herr Emil Weiske both in birds and Lepidoptera. The bulk of Herr Weiske's Lepidoptera came into my possession after Herr Ribbe had described as new thirteen species of *Pieridae* and a marvellous *Papilio* (*Insekten-Börse* xvii. 1900). Of these several *Pieridae* were not new to science, but enough remained to show us that the watershed of the Aroa River, where Weiske's specimens came from, must have a wonderful and rich lepidopterous fauna. Mr. Meek proved this up to the hilt.

After several years of vain endeavours, I at last persuaded Mr. Meek to undertake the very difficult journey to the head-waters of the Aroa River. Though the distance, as the crow flies, from the coast to the Upper Aroa River is but short, Mr. Meek and his party had to battle against immense difficulties and undergo many hardships before they reached a favourable collecting ground. Mr. Meek stayed in a district called Avera from the end of January to the beginning of April 1903, and made here a collection of nearly 16,000 specimens of Lepidoptera. Among these is a ♀ of *Troides goliath titan*, a series of both sexes of *Troides meridionalis*, a long series of *Papilio weiskei*, several *Delias* discovered by Weiske, and a very great number of new moths.

However, the altitude of the place was not great enough. Therefore Mr. Meek, soon after his return to Port Moresby, started again for the interior, boldly facing a second time the hardships of a climb up the mountains. This time a higher altitude was attained. But the work had scarcely been started at Owgarra, north of the head of the Aroa River, when a great disaster befell the expedition. Nearly the whole party contracted measles and had to hurry back to the coast, where Mr. Meek arrived with the loss of one native collector, who died. It was a very unfortunate ending to what promised to be the greatest scientific haul ever made in Lepidoptera in New Guinea, and we sincerely hope that Mr. Meek will meet with better luck on his next expedition to these regions.

The collection of Lepidoptera, though consisting of only 500-odd specimens, proves those high altitudes to be inhabited by a proportionately very great number of species which do not occur at lower elevations. The variety of the genus *Delias* is beyond every expectation. Mr. Meek procured not only all the species discovered by Weiske, but obtained in addition seven new ones. The finest discovery, however, is the new *Troides*, by its banded abdomen so unlike everything known. What may the ♂ be like? We hope that Mr. Meek, the discoverer of the peculiar tailed ♂ of *meridionalis*, will also succeed in finding the ♂ of the present species.

PAPILIONIDAE.

1. *Troides chimaera* spec. nov. (Pl. III. f. 25. ♀).

♀. Black. Head smaller than in the allied species. Eye without white border. Red colour of breast restricted, forming two patches which are not extended downwards to coxae as in *tithonus* and *paradisea*. Abdomen shaggy, each segment with a yellow apical band all round. Legs black.

Wings, *upperside* black.—Forewing: subfalcate, the distal margin being shallowly emarginate; vein SC^3 from angle of cell as in *paradisea*, stalk $SC^{4.5}$ about as long as the upper two cross-veins; a transverse, sinuous cell-patch, an interrupted row of discal spots, another of postdiscal ones, and sharply marked fringe-spots white, shaded with black.—Hindwing similar in shape to that of *paradisea*, but more deeply scalloped, rather woolly proximally; a spot in cell and the disc white shaded with black, the discal area externally tinged with yellow; seven black spots within this area, the first and the last connected with the black area, the other five isolated; white fringe-spots distinct.

Underside similar to upper.—Forewing: spots larger, purer white, discal series complete from SC^3 to (SM^1), the postdiscal spots more or less edged with grey, some diffuse grey scaling from postdiscal spot SC^3 — SC^1 outwards.—Hindwing: cell-spot and proximal portion of discal area purer white, distal portion purer yellow.

Length of forewing: 103 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

This very peculiar insect is in neuration nearest to *paradisea*, but differs from all species known in the banded abdomen.

2. *Troides goliath*.

Ornithoptera arruana, Felder; aberr. ♀ *goliath* Oberthür, *Et. Ent.* xii. p. 1 (1888).

Ornithoptera goliath id., *l.c.* xix. p. 1. t. 4. f. 19 (1894).

Dr. Pagenstecher, in *Jahrb. Nass. Ver. Nat.* lvi. p. 77 (1903), has published an article on this fine insect. We agree with Dr. Pagenstecher perfectly in his conclusion that *goliath*, *supremus* (= *schoenbergi*), *elisabethaereginae*, and *titan*, are names applying to one species only. But we must make a reservation. The specimens from British New Guinea are certainly different from those obtained in other parts of the island. We possess of this southern form (*goliath titan*) two ♀♀ from the Aroa River, one collected by Weiske and the other found by Meek. Both specimens differ from those known from Dutch and German New Guinea in the forewing bearing only a few very small white markings, and in the posterior black discal spots of the hindwing being smaller.

We have no specimens of *goliath* from German New Guinea, but possess one ♂ and two ♀♀ from the Dutch portion of the island. The ♂ came from somewhere about Geelvink Bay. It was contained in a collection made by natives or half-castes. This specimen agrees in colour well with the second one of Pagenstecher. It has a forewing of 82 mm. length. (We mention incidentally that it is erroneous to say that the green posterior area of the forewing is powdered with black. The green scales belong all to the upper layer. It is a black area powdered with green.)

Our two ♀♀ from Kapaur, Dutch New Guinea (Doherty)—the one caught in January, the other in February 1897—differ from one another in the size of the

spots of the forewing, in the length of the latter and in some other details. The smaller specimen, with a forewing of 100 mm. length, has the cell-patch of the forewing reduced to two contiguous spots standing one on each side of the middle fold of the cell; the discal spots M^1 —(SM^1) are very small, the upper one being a mere dot; the submarginal spots are also small. The black spots on the hindwing are large. The second and third abdominal segments are mesially black above.

The second Kapaur specimen has a forewing of 114 mm. length. The white spots of the forewing are larger, the second and third abdominal tergites are not black in middle, and the black spots of the hindwing below are smaller than in the first specimen.

The forewings of our two *females* of *goliath titan* measure 110 mm. and 103 mm. respectively.

The following specimens are known of *goliath*:

a. Troides goliath titan.

1 ♂ in coll. Grosse-Smith; from British New Guinea.

2 ♀ ♀ in Mus. Tring; " " " "

b. Troides goliath goliath.

1 ♀ in coll. Oberthür; from Dutch New Guinea.

1 ♂ in Mus. Tring; " " " "

2 ♀ ♀ " " " " " "

1 ♂ in Mus. Budapest; from German New Guinea.

2 ♀ ♀ " " " " " "

1 ♂ in coll. Ney; " " " "

2 ♂ ♂ " Pagenstecher; " " " "

1 ♀ " " " " " "

PIERIDAE.

3. *Delias albertisi neyi*.

Delias neyi Ribbe, *Insekten-Börse* xvii. p. 308 (1900) (Aroa R.); id., *Iris* xiii. p. 339. t. 8. f. 3 (1900); Grosse-Smith, *Rhop. Erot.* iii., *Delias* t. 8. f. 1. 2 (1901).

We have three ♂♂ of this form of *albertisi* Oberth. (= *discus* Hour.), two found by Weiske and one obtained by Meek. In one of Weiske's specimens the black discal spot of the underside of the hindwing is absent. Mr. Grosse-Smith, *l.c.*, made the suggestion that *neyi* was the ♂ of *albertisi*. Since the ♂ of *neyi* is rather more extended black on the forewing than the ♀ of *albertisi*, while in other *Delias* the reverse is the case, the suggestion was hardly supported by evidence. We have now the proof of its being erroneous. Among the material collected by W. Doherty, at Kapaur, Dutch New Guinea, in January 1897, there is a ♂ of *albertisi*, and we have lately received from Herr Ribbe one of the original ♀♀ of (*discus* =) *albertisi* collected at Sekar by H. Kühn. This true ♂ of *albertisi* differs from that of *neyi* in the white area of the forewing being much more extended, and in the discal spot of the hindwing below being very large, as it is in the ♀ of *albertisi*. However, there can be no doubt that *neyi* and *albertisi* are representatives of one another, being geographical forms of one species.

NOTE.—*Delias katharina* Ribbe, *Insekten-Börse* xvii. p. 308 (1900) is *Delias ornation* Godm. and Salv., *Proc. Zool. Soc. Lond.* p. 613. t. 56. f. 5. ♂ (1880) (♂ ♀, Pt. Moresby).

Delias harterti Ribbe, *l.c.*, is a *Huphina*, being the same species as *Huphina abnormis* Wallace.

4. *Delias kummeri*.

Delias kummeri Ribbe, *Insekten-Börse* xvii. p. 308 (1900) (Aroa R.); id., *Iris* xiii. p. 340. t. 8. f. 4. ♂ (1901); Grose-Smith, *l.c.* t. viii. f. 5. 6. (1901).

This is apparently a common species. Weiske found only ♂♂. Among Meck's material there are a number of ♀♀, which agree with the ♂♂ except in the more extended black distal borders of the upperside and the slightly shorter forewing.

5. *Delias kummeri f. ligata* nov. (Pl. II. f. 20. ♂).

♂♀. Among the long series of *kummeri* there is a great number of specimens in which the red postdiscal line of the underside of the hindwing is continuous with the red spot situated at the costal margin near the end of C. This red line is more or less heavily bordered with black proximally. A few specimens stand intermediate between the two forms.

6. *Delias bornemauni*.

Delias bornemauni Ribbe, *Insekten-Börse* xvii. p. 308 (1900) (Aroa R.); id., *Iris* xiii. p. 339. t. 8. f. 2. ♂ (1901).

There are four ♂♂ and three ♀♀ in the collection. The sexes are practically the same in pattern. The forewing is a little shorter in the ♀ than in the ♂, and bears three or four very small white subapical dots on the upperside. The black distal area of both wings is wider in the ♀. The red spots of the underside of the hindwing are not quite constant in size.

7. *Delias dives* spec. nov. (Pl. II. f. 14. ♂).

♂. Wings white on *upperside*.—Forewing black from apex of cell distad, costal edge black down to base, white area rounded distally, extending close to apex of SM².—Hindwing with very thin black distal border, not exceeding 1 mm. in width.

Underside olive-black, somewhat purplish, especially the hindwing, slightly glossy olive-green.—Forewing: a broad pale yellow band before middle anteriorly, just proximally of cross-veins, gradually widening behind, not reaching costal edge; four submarginal dots also pale yellow, the second the largest.—Hindwing: median band deeper yellow than on forewing, terminating behind at a large scarlet abdominal marginal spot; moreover, a submarginal row of five scarlet spots, rounded, nearly touching fringe.

♀. Not known.

Hab. Owgarra, north of head of Aroa River, May 1903. One specimen.

8. *Delias cuningputi* (Pl. II. f. 5. 6. ♀♀.)

Pieris cuningputi Ribbe, *Insekten-Börse* xvii. p. 308 (1900) (Aroa R.)

Delias cuningputi, Grose-Smith, *l.c.* t. 8. f. 9. 10 (1901).

Among a series of specimens of this species are several ♀♀ which differ markedly from the ♂♂ on the underside, the forewing being yellow from base to disc, and the white median band of the hindwing being abbreviated. The black distal borders of the upperside are wider than in the ♂.

9. *Delias weiskei*.

Delias weiskei Ribbe, *Insekten-Börse* xvii. p. 329 (1900) (Aroa R.).

Delias mirifica Grose-Smith, *l.c.* t. 9. f. 9. 10. ♂ (1901).

Mr. Grose-Smith erroneously renamed the present species, while he intended to give a new name to Ribbe's *Tachyris weiskei*, which is also a *Delias*. The *Delias weiskei* being described by Ribbe before the *Tachyris weiskei*, the latter must be renamed, which we have done below.

The ♀ of *D. weiskei* differs from the ♂ in the much broader black distal borders to the upperside, the more obtuse forewing, and the presence of two or three very small white subapical dots on the upperside of the forewing, these dots being seldom vestigial in the ♂.

10. *Delias aroae* (Pl. II. f. 4. ♀).

Pieris aroae Ribbe, *Insekten-Börse* xvii. p. 346 (1900) (Aroa R.).

Delias aroae, Grose-Smith, *l.c.* t. 9. f. 4. 5. ♂ (1901).

The black distal area of the upperside of the forewing is broader behind in the ♀ than in the ♂, and includes two or three very small yellowish white subapical dots: the hindwing has a broad black distal border, varying individually from $2\frac{1}{2}$ to 4 mm. One of our three ♀ ♀ is slightly washed with greenish yellow above, and bears some whitish spots in the black border of the hindwing. The white median band of the underside of the hindwing is abbreviated, as in the ♀ of *D. cuningputi*, and the yellow submarginal spots are very much smaller than in the ♂.

11. *Delias emilia* nom. nov.

Tachyris weiskei Ribbe, *Insekten-Börse* xvii. p. 330 (1900) (Aroa R.).

Delias weiskei, Grose-Smith, *l.c.* t. 8. f. 6. 7. 8. ♂ ♀ (1901).

This is a *Delias*, not a *Tachyris*. Its name must be changed on account of *Delias weiskei*, which stands first. See above, No. 9.

12. *Delias itamputi* (Pl. II. f. 10. 11. ♀ ♀).

Delias itamputi Ribbe, *Insekten-Börse* xvii. p. 330 (1900) (Aroa R.); Grose-Smith, *l.c.* t. 8. f. 7. 8. ♂ (1901).

The ♀ is widely different from the ♂. I give here a description of it.

♀. Wings, *upperside*, black.—Forewing: a proximal area, widest behind, ill defined, not quite reaching to base of M^1 greenish yellow; a subapical band of five patches chrome-yellow, middle ones more or less prolonged.—Hindwing greenish yellow from base to apex of cell, the area not sharply defined.

Underside black, somewhat glossy, especially on hindwing.—Forewing: greenish yellow, basal area smaller than above, subapical band broader and longer.—Hindwing: a basal costal patch greenish yellow, in one ♀ a spot of the same colour also at apex of cell (just vestigial in the specimen of which the underside is here figured), a submarginal greyish white line parallel with edge of wing, more or less interrupted at the veins.

13. **Delias clathrata** spec. nov. (Pl. II. f. 7. 9. ♂, 8. ♀).

♂. Wings, *upperside*, white.—Forewing with broad black distal border, which extends along costal margin to base and is dentate at the veins, the costal border being also produced backwards on the cross-veins; two to four white subapical dots.—Hindwing with thin black distal border.

Underside.—Forewing for the greater part black, a broad white discal band, occupying nearly the whole hinder margin, strongly narrowing costad, curved costad in front, incised distally on the veins, uppermost partition almost separate; a submarginal series of spots, golden yellow, the upper three larger, the others minute, the first and second farther from distal margin than the others.—Hindwing white, a yellow spot near base behind costa; base, band beyond that spot, abdominal area and a narrow distal border black, a large median area also black, separated into patches by the white veins; base and abdominal area densely dusted over with greenish yellow scales: distal border widest at the veins.

♀. Like ♂, but the black colour of the distal marginal area more extended.

Hab. Owgarra, north of head of Aroa River, May 1903.

A series.

14. **Delias microsticha** spec. nov. (Pl. II. f. 18. 19, ♂♂).

♂. Wings, *upperside*, white.—Forewing: costal edge and a broad distal border black; this border gradually narrowed posticad, reaching as far proximad as base of R^1 and being only 1 to $1\frac{1}{2}$ mm. broad at SM^2 , concave proximally, slightly incised at the veins.—Hindwing with thin black distal border.

Underside purplish olive-black, glossy on hindwing and at apex of forewing.—Forewing: a broad streak in cell, gradually narrowed to base, two spots beyond apex of cell, and a series of subapical respectively submarginal dots.—Hindwing: a basal costal spot crimson; a spot in middle of costal margin, a row of submarginal dots, a spot in cell beyond middle, and a row of thin short streaks on disc yellow.

♀. Not known.

Hab. Owgarra, north of head of Aroa River, May 1903. Several specimens.

15. **Delias mira** spec. nov. (Pl. II. f. 12. ♂, 13. ♀).

♂. Wings, *upperside*.—Forewing black, a white subbasal patch from cell to hinder margin, bordered with sparser white scaling; a row of four small white subapical dots.—Hindwing white, apex black, this area extending nearly as far as cell, but being proximally densely shaded over with white, distal edge black also posteriorly.

Underside.—Forewing black, greyish white at hinder margin from base to distal angle, a greyish white costal spot beyond apex of cell; a series of five golden yellow submarginal spots.—Hindwing: costal edge white at base, a yellow patch behind this white border, limited by an obliquely longitudinal black streak extending from middle of base to middle of costal margin, a yellowish white costal dash separating this streak from the black distal border of the wing, which is widest at the veins; a black discal band just beyond apex of cell, narrowest at M^1 , widest behind, not reaching up to SC^2 ; between this band and the black margin a large pale yellow patch; abdominal fold blackish, shaded with olivaceous yellow.

♀. Like ♂, but the white patch of the forewing larger above and below, the upperside with six submarginal spots on forewing, the white of the hindwing almost separating a black patch near cell from apical area, the yellow submarginal spots of the underside of the forewing much larger, six in number, and the black discal band of the hindwing reduced to a subcentral spot, followed by a small dot and a brown shadow.

Hab. Owgarrá, north of head of Aroa River, May 1903. One pair.

16. *Delias eichhorni* spec. nov. (Pl. II. f. 15. 16. ♂, 17. ♀).

♂. Wings, *upperside*.—Forewing black, a large white triangular area from hinder margin forwards to R³, penetrating into the cell, truncate-sinuate costally, not extending to base; three white spots beyond apex of cell from costal margin to R³, more or less confluent, the first the smallest: two small white subapical spots.—Hindwing for the greater part white: a somewhat irregular distal marginal band-black, tapering behind.

Underside.—Forewing black, a large deep cadmium-yellow area as shown in figure, deeply excised at the cross-veins; a row of five white submarginal spots, slightly tinged with citron-yellow, second the largest, fourth the smallest.—Hindwing olive-black; a white band somewhat shaped like figure 3 obliquely from base of costal margin to disc, streaked or spotted with yellow between the veins, a submarginal row of large white spots, mostly nailhead-shaped, being produced to the distal edge, except the first; these also marked with yellow mesially; a yellow spot between end of band and SM²; this vein citron-yellow; abdominal margin more or less white in middle.

♀. Differs from ♂ on the *upperside* in the forewing being more extended black and having the spots sulphur-yellow, in the hindwing being shaded with sulphur-yellow, and having a broader black border, which includes vestigial sulphureous spots; and on the *underside* in the forewing bearing a series of seven submarginal spots.

Hab. Owgarrá, north of head of Aroa River, May 1903. A small series.

17. *Delias niepelti* (Pl. II. f. 3. ♀).

Delias niepelti Ribbe, *Insekten-Börse* xvii. p. 330 (1900) (Aroa R.); Grose-Smith, *l.c.* t. 8. f. 3. 4. ♂ (1901).

Mr. A. S. Meek sent a series of ♂♂ and several specimens of the hitherto unknown ♀ of this remarkable species. The forewing of the ♀ is chrome-yellow from base to apex of cell, above and below, and there is a series of spots of the same colour in the black area, these spots being much larger below than above. The hindwing above is canary-yellow, shaded with citron-yellow from base to apex of cell, being slightly whitish at abdominal margin; on the underside the hindwing is similar to that of ♂.

18. *Delias meeki* spec. nov. (Pl. II. f. 1. ♀, 2. ♂).

♂. *Upperside* as in *niepelti*, but the white area of the forewing more sharply defined, more straight distally, and anteriorly rather more extended, there being two white spots beyond the upper angle of the cell.

Underside also similar to that of *niepelti*; the yellow area of the forewing

much paler and distally straight, the subapical spots somewhat smaller: hindwing with a yellowish white costal patch reaching down to cell.

♀. Black colour of *upperside* rather more extended than in ♀ of *niepelti*, the yellow area of forewing more straight distally; basal half of hindwing grey, being yellow externally between SC² and R¹, or a little beyond these veins.

On the *underside* the yellow area of the forewing is paler than in *niepelti* ♀, less extended and distally straight; the hindwing bears a yellowish white costal patch which does not reach beyond R¹, not being triangular as in ♂, but longitudinal.

Hab. Ougarra, north of head of Aroa River, May 1903. A series, but most specimens in bad condition.

ERYCINIDAE.

19. *Abisara albiplaga avera* subsp. nov. (Pl. II. f. 23. ♂).

♂. Similar to the ♂ of *A. a. albiplaga* from Aru, both wings more obtuse, orange band of forewing, above, narrower; black costal area of hindwing larger, orange area less acutely triangular, less broad behind, black marginal spots larger. On the underside the band of the forewing is posteriorly narrower, and the black submarginal and marginal spots of the hindwing are much larger.*

Hab. Upper Aroa River. One specimen.

20. *Abisara weiskei* (Pl. III. f. 28. ♀).

♂. *Abisara weiskei* Rothschild, *Nor. Zool.* viii. p. 218. 404. t. 10. f. 2 (1902) (Aroa R.).

Mr. A. S. Meek found a ♀ specimen of an *Abisara* which belongs, doubtless, to the species of which we have described and figured the ♂ as *Abisara weiskei*, i.e.

This ♀, as will be seen from the figure, is remarkably different from the ♀♀ of *segecia* and *satraps* in the broad-banded forewing and deeply scalloped and almost uniformly olivaceous black hindwing. The white band of the forewing, *upperside*, is strongly narrowed in front, but there is a transverse spot in the cell which stands posteriorly so close to the band as to give the latter the appearance of being forked. The hindwing is purplish black on disc; it bears a series of black submarginal spots more or less bordered with pale grey proximally; anterior submarginal interspaces faintly tinged with tawny; prominent white fringe-spots.

Underside pale drab from base to disc.—Forewing: white band as above, white cell-bar continuous with it behind, a round spot proximally of this bar, the rounded interspace between bar and band, and the wing from the band outwards Vandyke-brown, paler at apex, white postdiscal line broad, continuous, shaded with orange behind.—Hindwing: two spots in cell, a curved median row of seven

* We have one ♂ of this species from Great Key, April 1896 (Webster), which differs from the Aru and New Guinea forms as follows:—*Upperside*: forewing more elongate, orange band only two-thirds the width of that of *avera*, less sharply defined proximally, shorter, reaching just beyond M², the area between band and hinder angle of wing being black; orange area of hindwing as broad behind as in the Aru form; black area more restricted; marginal spots more rounded than in *avera*, shorter. On the *underside* the band of the forewing is followed by a whitish spot M²—SM²; black submarginal spots of hindwing very large as compared with the other two forms, larger than the interspaces between them and the brown-black area. We name this subspecies:

Abisara albiplaga keiana subsp. nov. (Pl. II. f. 24. ♂).

spots, and a broad, ill-defined, outer discal band of confluent patches, widest between R^2 and R^3 , Vandyke-brown; black submarginal spots bordered with white, admarginal interspaces ochraceous yellow, posteriorly shaded with olive.

Underside of abdomen orange posteriorly.

NOTE.—*Abisara abbuna* Heller, *Iris* xv. p. 131. t. 3. f. 7. ♂ (1902) is the ♂ of *Abisara satrapa simbangana* Hagen, *Jahrb. Nass. Ver. Nat.* 1. p. 99. n. 166 (1897) (Simbang).

21. *Dicallaneura amabilis* spec. nov. (Pl. II. f. 21. ♂, 22. ♀).

♂. Upperside of thorax and abdomen olivaceous Vandyke-brown; head chestnut, white at eyes; palpus white, underside of thorax and abdomen, and legs creamy buff.

Wings, *upperside*, olivaceous Vandyke-brown; forewing blackish brown in outer two-thirds, with a broad yellow band from near costal edge to M^2 , which is bisinuate distally.

Underside.—Forewing: chestnut, olive from M^2 to hinder edge; two bars in cell and a third beyond olive; a white median band from costal edge to M^2 separated by a transverse chestnut bar R^3 — M^2 into two portions, outer portion tinged with yellow distally; four small transverse bars on disc from costal margin to M^1 silvery white; a white costal bar halfway to apex, and a white subapical dot, a yellowish rufous submarginal line from M^2 forward, gradually disappearing towards costal margin.—Hindwing: chestnut, washed with drab, excepting a number of chestnut bands and spots, situated as in the ♀ figured, but mostly rather heavier; median band extending from costal edge to R^3 slightly edged with white distally; three white spots SC^2 — R^3 at or within chestnut discal spots; first and third submarginal spots (perhaps also the posterior ones, which are missing, the wing being torn) black centred with white.

♀. Body paler than in ♂, breast white. Wings, *upperside*.—Forewing at base and hindwing dark drab; forewing with a large white area, not extending to base, reaching to upper angle of cell and posteriorly to near apex of SM^2 , almost rectangularly widening at R^3 , then rounded; hindwing with a white elongate costal patch; fringe of hindwing spotted with white, white fringe at tip of tail especially conspicuous.

Underside rather paler than in ♂, especially the hindwing.—Forewing with a broad white band, sharply defined, its inner edge crossing M at point of origin of M^2 , outer edge subrectangularly broken at R^3 as above, a costal bar of spots outside the band followed half-way to apex by a line of seven or six silvery spots; outside this line a pale continuous line; two white subapical dots.—Hindwing with white costal patch outside the oblique median band; interspaces between the pale chestnut markings whitish, much paler than in ♂; submarginal spots black, more or less edged with silvery white distally, spot in tail longest; admarginal interspaces ochraceous.

Length of forewing: ♂ 24 mm., ♀ 20 mm.

Hab. Owgarra, north of head of Aroa River, May 1903. One ♂, 2 ♀♀.

NYMPHALIDAE.

22. *Messaras mimicus* spec. nov. (Pl. III. f. 43. ♂).

♂. Upperside of body black-olive, slightly greenish, underside buff. Wings, *upperside*, black-olive, somewhat glossy, faintly greenish olive and purplish

when viewed obliquely; a buff-yellow band from R^3 of forewing beyond M^2 of hindwing.—Forewing: a postdiscal band, anteriorly curved costad, a little paler than the ground colour, hardly visible.—Hindwing: a discal band of black spots, followed by a postdiscal line and a broadish submarginal band of confluent lunules, of a deeper colour than the ground, the submarginal band well defined proximally, but scarcely separate from the marginal line, the interspace being nearly as deep in tint as the margin; no pale fringe-spots on either wing.

Underside washed with clay from base to median band; outer half much paler than above, with the markings more prominent; median band clay-colour. Forewing with a discal row of black patches, which are not so prominent as those of hindwing; on both wings, between this series and distal margin a whitish, slightly purplish line of halfmoons, followed by a much less broken line, which is very indistinct on forewing.

Length of forewing: 27 mm.

Hab. Upper Aroa River.

One ♂ only. This species is, on the upperside, a close mimic of *Mycalesis barbara* Grose-Smith, which is not a rare insect in the mountainous districts of British New Guinea, and was procured in some numbers by Mr. A. S. Meek. The specimens of *barbara* are slightly different, representing a southern subspecies, which we name:

23. *Mycalesis barbara mea* subsp. nov. (Pl. III. f. 42. ♂).

♂. Like *M. b. barbara* from German New Guinea, but the band of the forewing, above, shorter, the uppermost spot being more or less obsolete.

♀. This sex of *b. barbara* is not known. The ♀ of *b. mea* is paler than the ♂, the discal band is broader and, on the forewing, longer, reaching to R^2 , as in the ♂ of *M. b. barbara*, the eye-spots are more prominent, and the submarginal lines of the hindwing more distinct. The underside is practically as in the ♂, but the whitish discal band is broader, and the interspace between the eye-spots and the distal margin wider.

Hab. Upper Aroa River.

A long series.

GEOMETRIDAE.

24. *Bordeta aroensis* spec. nov. (Pl. III. f. 37. ♀).

♀. Body black, collar and anterior coxae pale buff, abdomen orange, banded with black at the bases of the segments.

Wings, *upperside*, black.—Forewing: an elongate median spot, a subrotundate spot halfway to apex, and a tiny submarginal dot R^3 — M^1 pale buff.—Hindwing: a large median area, extending from abdominal margin close to costal edge, and two spots outside it, orange, the upper spot small, connected with the second by some orange scales.

Underside like upper, the markings rather larger, the orange area of the hindwing extending to base and the two spots joined together.

Length of forewing: 22 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

Eubordeta gen. nov.

Similar to *Bordeta*, but both sexes with pectinated antennae, the pectinations very long in ♂.

Type : *E. eichhorni* spec. nov.

25. **Eubordeta meeki** spec. nov. (Pl. III. f. 27. ♂).

♂. Body blue-black, purplish ; abdomen with a row of lateral crimson dots.

Wings, *upperside*, black, with a beautiful blue-purple flush in basal half or two-thirds.—Forewing : a white semitransparent median band cut by the black veins, stopping at SM^2 ; a short subapical crimson band.—Hindwing : a curved submarginal crimson band gradually narrowing behind.

Underside black, slightly purplish proximally.—Forewing : white band as above ; a subapical metallic golden band from near costal margin beyond MP , obtusely angulate at R^2 .—Hindwing : a metallic golden band corresponding to the crimson one of upperside, but much narrower, anteriorly touching a crimson costal border which extends from this band to base ; a second golden band from near anal angle obliquely across apex of cell, stopping at SC^2 , cellular portion almost entirely white.

Length of forewing : 27 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

26. **Eubordeta eichhorni** spec. nov. (Pl. III. f. 32. ♂, 33. ♀).

♂ ♀. Body metallic green-blue. Wings black above and below, slightly shot with blue, fringe somewhat metallic, especially on hindwing.

Upperside with a large bright-red area on forewing extending from near base to near apex of cell, neither reaching costal nor hinder margin, rounded distally. Hindwing black, costal margin reddish from base beyond middle.

On *underside* the same red area, but less bright, fading into yellow behind ; forewing, moreover, with yellow subapical band.—Hindwing with broad yellow band on outer disc extended to base along costal edge, becoming red proximally.

Length of forewing : 20 to 24 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

27. **Eubordeta miranda** spec. nov. (Pl. III. f. 34. ♂).

♂. Similar to *eichhorni* on the upperside of the wings, but the body only slightly green-blue, not glossy, the red area paler and anteriorly somewhat shorter and posteriorly longer, the black distal area being at SM^2 not quite so broad as the cell is at apex, the red costal spot of the hindwing, above, covered by the forewing, larger, and the underside different. The subapical band of the forewing, below, tapering behind ; hindwing with two yellow bands, the external one only half the width of that found in *eichhorni*.

Length of forewing : 23 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

28. **Eubordeta hypocala** (Pl. III. f. 26. ♂).

Bordeta hypocala Rothschild, *Nor. Zool.* viii. p. 220. 405, t. 10, f. 9 (1902) (Aroa R.).

29. **Milionia aroensis** spec. nov. (Pl. III. f. 41. ♂).

♂. Upperside of body, legs, palpi, proximal areas of upperside of wings and of forewing below, and a costal and postcellular basal streak on underside of hindwing metallic green-blue. Rest of wings blue-black, the blue tint especially noticeable on upperside. Forewing with crimson band from middle of costa to hinder margin, reaching the latter just before angle, the band slightly paler below than above, becoming faintly yellowish posteriorly.

Length of forewing: 23 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

30. **Milionia ventralis** spec. nov. (Pl. III. f. 38. ♂).

♂ ♀. Body olive, with very little grey, except on upperside of abdomen, which is more distinctly glaucons green and feebly metallic; underside of abdomen yellow, except eighth segment and ♂-claspers.

Wings, *upperside*, blue-black; basal two-thirds of hindwing metallic green-blue; forewing with a nearly straight crimson band from distal third of costa a little beyond M², not quite reaching costal edge and not touching cell.

On *underside*, basal halves of both wings metallic green-blue; band of forewing paler than above.

Length of forewing: 19—22 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

A series.

31. **Milionia parva** spec. nov. (Pl. III. f. 30. ♀).

♀. Body olivaceous black, legs somewhat clayish, no metallic gloss.

Wings black above and below, in side-light shot with blue above in proximal half, not glossy. Forewing with broad orange band from costa to inner margin reaching this at angle, the band paler below.

Length of forewing, 17 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

32. **Milionia diva** spec. nov. (Pl. III. f. 39. ♂, 40. ♀).

♂. Body, legs, base of hindwing above and of forewing below, and two basal streaks on hindwing below glossy metallic green-blue. On upperside of forewing an orange band from before middle of costa to hinder margin near angle; this band contiguous with a triangular crimson area extending to near base; on underside the orange band is repeated, a little wider than above and proximally in cell shaded with crimson, the triangular crimson area being absent.

♀. Like ♂, but thorax and abdomen less glossy, forewing below without green-blue streak, and hindwing only with the subcostal streak; yellow and red

area of forewing, above, deeper excised and on underside continued anteriorly to base.

Length of forewing : ♂, 20 mm. ; ♀, 23 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

33. *Thalassodes nivestrata* (Pl. III. f. 36. ♂).

Thalassodes nivestrata Warren, *Nov. Zool.* x. p. 365. n. 45 (1903) (Aroa R.).

34. *Chrysocraspeda rothschildi* (Pl. III. f. 31. ♂).

Chrysocraspeda rothschildi Warren, *l.c.* p. 366. n. 48 (1903) (Aroa R.).

35. *Boarmia aroensis* spec. nov. (Pl. III. f. 29. ♀).

♀. Body, upperside of hindwing and underside of both wings slate-colour.

Wings, *upperside*.—Forewing olivaceous tawny, densely marmorated and irrorated with slaty black, especially in basal two-thirds, a creamy patch beyond apex of cell from costa to M¹, traversed by a black line.—Hindwing with white discal band from costa to R³.

Underside.—Forewing with large orange band beyond apex of cell from costa towards distal margin; a few orange specks near distal edge of wing.

Length of forewing : 28 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

CHALCOSIIDAE.

36. *Chelura hemileuca* spec. nov. (Pl. III. f. 35. ♂).

♂. Body black, somewhat glossy.

Wings practically identical in colour above and below.—Forewing : a basal band black, an antemedian band and outer two-fifths of wings blackish, transparent.—Hindwing : apex blackish as on forewing, but this colour much more restricted.

Length of forewing : 24 mm.

Hab. Owgarra, north of head of Aroa River, May 1903.

EXPLANATION OF PLATES II. AND III.

PLATE II.

Fig.	1.	<i>Delias meeki</i>	♀	.	.	.	.	.	.	.	p. 316
"	2.	"	♂	.	.	.	.	.	.	.	p. "
"	3.	"	<i>nicipelti</i>	♀	.	.	.	.	.	.	p. "
"	4.	"	<i>aroue</i>	♀	.	.	.	.	.	.	p. 314
"	5.	"	<i>cunningputi</i>	♀	.	.	.	.	.	.	p. 313
"	6.	"	"	♀	.	.	.	.	.	.	p. "
"	7.	"	<i>clathrata</i>	♂	.	.	.	.	.	.	p. 315
"	8.	"	"	♀	.	.	.	.	.	.	p. "
"	9.	"	"	♂	.	.	.	.	.	.	p. "
"	10.	"	<i>itamputi</i>	♀	.	.	.	.	.	.	p. 314
"	11.	"	"	♀	.	.	.	.	.	.	p. "
"	12.	"	<i>mira</i>	♂	.	.	.	.	.	.	p. 315
"	13.	"	"	♀	.	.	.	.	.	.	p. "
"	14.	"	<i>dices</i>	♂	.	.	.	.	.	.	p. 313
"	15.	"	<i>eichhorni</i>	♂	.	.	.	.	.	.	p. 316
"	16.	"	"	♂	.	.	.	.	.	.	p. "
"	17.	"	"	♀	.	.	.	.	.	.	p. "
"	18.	"	<i>microsticha</i>	♂	.	.	.	.	.	.	p. 315
"	19.	"	"	♂	.	.	.	.	.	.	p. "
"	20.	"	<i>hammeri f. liquidus</i>	♂	.	.	.	.	.	.	p. 313
"	21.	<i>Dicallaneura amabilis</i>	♂	.	.	.	.	.	.	.	p. 315
"	22.	"	"	♀	.	.	.	.	.	.	p. "
"	23.	<i>Abisara albiplagi uvera</i>	♂	.	.	.	.	.	.	.	p. 317
"	24.	"	<i>keiana</i>	♂	.	.	.	.	.	.	p. "

PLATE III.

"	25.	<i>Troides chimera</i>	♀	.	.	.	.	.	p. 311
"	26.	<i>Eubordeta hyporata</i>	♂	.	.	.	.	.	p. 321
"	27.	"	<i>meeki</i>	♂	.	.	.	.	p. 320
"	28.	<i>Abisara weiskei</i>	♀	.	.	.	.	.	p. 317
"	29.	<i>Boarmia aroensis</i>	♀	.	.	.	.	.	p. 322
"	30.	<i>Milionia parca</i>	♀	.	.	.	.	.	p. 321
"	31.	<i>Chrysocraspida rothschildi</i>	♂	.	.	.	.	.	p. 322
"	32.	<i>Eubordeta eichhorni</i>	♂	.	.	.	.	.	p. 320
"	33.	"	♀	.	.	.	.	.	p. "
"	34.	"	<i>miranda</i>	♂	.	.	.	.	p. "
"	35.	<i>Chelara hemileuca</i>	♂	.	.	.	.	.	p. 322
"	36.	<i>Thalassodes nirestrata</i>	♂	.	.	.	.	.	p. "
"	37.	<i>Bordeta aroensis</i>	♀	.	.	.	.	.	p. 319
"	38.	<i>Milionia ventralis</i>	♂	.	.	.	.	.	p. "
"	39.	"	<i>dira</i>	♂	.	.	.	.	p. "
"	40.	"	♀	.	.	.	.	.	p. "
"	41.	"	<i>aroensis</i>	♂	.	.	.	.	p. "
"	42.	<i>Mycalesis barbara men</i>	♂	.	.	.	.	.	p. "
"	43.	<i>Messarus mimicus</i>	♂	.	.	.	.	.	p. 318



